THE WESTERN AUSTRALIAN
NATURALIST

Vol. 5 JULY 12, 1955 No. 1

THE BREEDING OF THE MOUNTAIN DEVIL IN CAPTIVITY

By C. C. SPORN, Gosnells.

For nearly six years we have been keeping the interesting lizards, Mountain Devils (*Moloch horridus*), as pets and making a close study of their habits.

The first one we had, a smallish male, did well for a time but began to pine after a few months and finally died. Another, a female, which we obtained in October, 1949, fared much better. At the begining of November she produced five eggs. These were laid on the surface of the ground under a wire-covered frame where she was held captive at the time. They were collected and buried in sand, in the hope that they might hatch out, but later it was found that the eggs had collapsed and nothing came of the experiment. This lizard was probably an old one as, although she had an excellent appetite and fed heartily for the following three years or so, she did not increase in size, and finally died quite peacefully.

On October 28, 1951, we were given another female in excellent condition and heavy with eggs. We named her "Florence." The following day she laid seven eggs, also on the ground. Again we tried burying them in sand, also with no result.

We persevered with our endeavours to breed the lizard in captivity and sought to add a male to our collection. A nephew then residing at Yellowdine was able to oblige, and from him we obtained a small but very lively male lizard which reached us on April 11, 1952. He was promptly named "Rufus" because of his reddish colouration, due no doubt to the type of country he had come from. We had in the meantime made a fairly large enclosure, completely covered over with small chicken netting, to accomodate the lizards. A meaty bone or some sweet stuff placed inside it ensured a plentiful supply of little black ants.

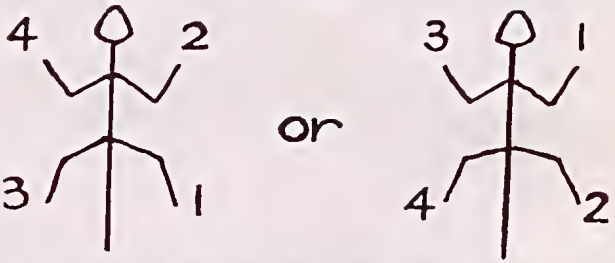
It was a warm day when Rufus was introduced to Florence and she greeted the newcomer quite eagerly. There was much rapid bobbing of heads and apparent excitement. That same afternoon the lizards mated. The complete act was unfortunately not fully observed, but only at the stage when the female was walking around with the male attached to her, clinging to her back or rather to her side with his tail *curled under hers* and helping himself along with one hind-foot. I take it that this would be the actual act of copulation.

When the cold weather arrived the lizards were removed from their enclosure and put in the shed on a bag with the wire-covered

frame over them, and there they remained for most of the winter. Occasionally on sunny days they were put out for a while to warm themselves and eat a few ants if there happened to be any about. As spring came on and ants became plentiful again Florence developed a tremendous appetite.

In October the lizards were returned to their outside run, and we began keeping a regular watch on what was happening there.

At last, on the morning of November 19 Florence began the excavation of her nesting burrow and worked all that day with short spells until about 4 p.m. when she gave up for the day, apparently exhausted by her arduous labour. The actual burrowing process was most interesting to watch. Florence would begin quite far back on the mound of excavated material which was pushed well back from the mouth of the tunnel. The digging was done by several scrapes being given with one foot, sometimes the hind-foot being used first. This was followed by more scrapes with the other foot *on the same side,* the process being repeated on the opposite side, as in the figure. On reaching the bottom, which was



of course deepened a little each time she turned round in the burrow, she would come out slowly, head first, to the top end of the mound, and after a short rest begin all over again. At the end of the second day's work she had dug herself out of sight.

On the third day, November 21, the digging was completed, and that afternoon, instead of coming out as usual, she remained in the burrow and laid her eggs.

The next morning Florence was hard at work filling in the tunnel. As we found out afterwards the eggs are not covered but lie loosely in a small cavity left in the very bottom of the burrow. The same procedure, in reverse of course, was carried out for the filling in. After scraping in a certain amount Florence would turn round in the burrow and ram in the material with her head and fore-part of the body. By noon the work was roughly completed, but the lizard was not quite satisfied and she spent the rest of the day in finishing off the job properly, giving a scrape here and a scrape there until not a vestige of the mound was left and the whole surface was quite level. Those four days of toil must have tired her a good deal as she was very inactive for the next two or three days.

We had been informed by Mr. L. Glauert (Curator of the W.A. Museum) that the incubation period might be between eight and

ten weeks; so before that time had elapsed we placed over the actual site of the burrow a box frame covered with wire gauze, to prevent the escape of any small lizards that might emerge.

When the estimated time for hatching had been exceeded by several weeks, we began to wonder whether the eggs were, perhaps, infertile. On February 28, 1953, we carefully opened up the burrow to find out. The course of the tunnel was followed down, but in spite of all our care a probing fore-finger damaged one of the eggs, which contained a fully-formed embryo. Several more eggs, half buried in the sand, could be seen in the nesting chamber, and now we were faced with the problem of having to re-close the burrow without filling in the cavity where the eggs lay. This was difficult as the top soil was very loose and dry. We managed it by placing a wad of paper over the egg chamber, and by dampening the soil slightly we were able to restore everything to something like the original condition.

One day, a couple of weeks later, as we wanted to sieve some sand for a fish pond, we took the gauze wire frame away and replaced it with another, covered with half-inch chicken netting, and this is where we made a mistake.

Two more weeks went by and, as still nothing had eventuated, we came to the conclusion that in opening up the burrow we had probably upset the course of nature and that the rest of the eggs were spoilt. On the afternoon of March 28 we went out, and for once failed to have a look at the burrow site. On the following morning, however, on inspection we discovered a neat little hole about three-quarters of an inch across under the box frame, but no lizards! They had made their exit on the very day we had been out and had crawled through the half-inch mesh. After having waited 18 weeks for this interesting event we were, naturally, very disappointed.

A more or less hopeless search was made, but with so much cover about, dense scrub on one side and thick tea-tree hedges on the other, needless to say we found nothing. Two days later as my wife was returning from the woodshed to the house she happened to glance down at the path and something caught her eye. There, curled up in a little hollow on the path was Agatha, the baby Mountain Devil! She measured 6 cm. in length, was perfectly proportioned, and the very next day had her first feed of ants on the front path, deftly flicking them up with her tongue just as the adult lizards do.

Apparently two lizards had emerged, as on opening up the burrow afterwards we found two empty egg cases. The remaining eggs, three in number, had probably been infertile and had almost completely disintegrated.

Agatha thrived exceedingly and grew apace for over twelve months, but after casting her second skin she began to sicken and eventually died when about fifteen months old. She was given to the W.A. Museum as a specimen.

In each of the two succeeding seasons Florence produced batches of eggs.

On November 27, 1953, she was seen to make a slight eavity on the surfaee. By the following day she had burrowed to a depth of a foot or so. She was still burrowing on the morning of November 29, and was filmed by Mr. N. A. Uren of the Visual Edueation Branch. That afternoon the burrow was half-filled in by 5 p.m. and roughly finished by evening. Levelling off was eompleted next morning. It will be noted that Florenee exeavated her seeond burrow mueh more expeditiously than the first one. On February 27, 1954, a baby *Moloch* was found near the burrow, having probably emerged within the previous 24 hours. Next day three more were found. We exeavated the burrow and found that five eggs had hatehed, two being addled, making a total bateh of seven eggs. The length of the tunnel was approximately 22 inehes, and the depth of the egg ehamber was 10½ inehes from the surfaee.

The shorter ineubation period, 90 days as compared with 128 days the previous season, was probably due to the fact that the summer of 1953-54 was mueh warmer and drier.

One of the young lizards eseaped after a few months, and another died when about six months old. There are still two left.

On November 9, 1954, Florence commeneed burrowing again but her operations were held up for three days beeause of wet, eold weather. She eommeneed work again on November 13, rather late in the morning, and finished levelling-off operations on November 15 at noon. However, nothing eame of this lot. The heavy rains of February, 1955, made the soil eold and soggy for some time, and the eggs were probably destroyed. We eould find no traees of them whatsoever, and do not know how many eomprised the bateh.

GENERAL NOTES ON *Moloch horridus*.

Night resting position.—A healthy Mountain Devil never sleeps with its head raised. When it does that it is siek and will probably die within a month or so. The normal resting position is well snuggled down with the snout resting on the ground.

Feeding.—I have noted six different speeies of ants that are taken as food, the favourite being the eommon small, blaek, smelly ant. No stinging ants are touehed. The feeding rate varies aeeording to number and size of ants. *Moloch* likes a single trail best. Too many ants eonfuse him and the feeding rate drops. The average is about 20 to 30 ants a minute. A very approximate estimate from more or less easual observations of the duration of a "meal" at a trail would be 1 to 1½ hours for an adult lizard. The smaller ones are, of eourse, more quiekly filled up.

Eye-sight.—This is extraordinarily keen at any distanee and ranges from a fraetion of an ineh to hundreds of yards. A bird flying high almost out of sight is spotted immediately.

Mating Behaviour.—I have noted that the female lizard will make advanees by running around animatedly and mounting the male. In this partieular ease the male in question was siek and, of eourse, made no response. When the male's attentions are unwelcome the female gives a rapid squirm and a sudden lift of her feet on one side, bueking him off sideways so to speak.

Burrow.—Length, 18-20 inches; slope, about 1 : 2; depth of egg chamber, 10-11 inches from the surface. The soil in this area is dry just on the surface, but moist below. By the time the eggs hatch the soil would only be very slightly moist at the depth of the nesting chamber.

Eggs.—In our experience the clutch is 6 or 7; laid in November.

Incubation period.—Apparently varies according to weather conditions; in our experience varied from just under 13 weeks to slightly more than 18 weeks.

Casting of skin.—Young ones shed their skin twice in the first year; the first time in December when about nine months old and again the following February or March. The adult lizards shed the skin once a year, in February or March. The new skin is not absorbent for some time.

Rate of growth.—Newly hatched lizards are approximately 6 cm. in length; at 9 months, 9.6 cm.; and at 12 months, 11.5 cm. This seems reasonably fast as most adult lizards are not much over 15 cm. or so.

Drinking.—The statement that Mountain Devils never drink is erroneous. Certainly they do absorb most of the moisture they need through their skins, but when light rain falls in the summer time they will eagerly lick the wet sand or lap up drops of water which collect on fallen leaves on the ground. I have had one which drank more than half a teaspoonful of water held out to it.

NOTES ON THE SPOTTED BOWER-BIRD *(Chlamydera maculata)*

By VINCENT SERVENTY, Subiaco.

During a trip to Exmouth Gulf I had the opportunity of seeing the Spotted Bower-bird for the first time and also examining one bower in the Gulf area. All observations were carried out between July 21 and August 5, 1952.

For a general account of these birds there is a popular summary by Chisholm (*Bird Wonders of Australia,* 1948). Much additional information is given by Iredale (*Birds of Paradise and Bower Birds,* 1950). However, for a modern treatment of the problems of bower building and its purpose Marshall (*Bower-Birds, Their Displays and Breeding Cycles,* 1954) has given an excellent survey of the position with a list of references dealing with the species.

In the present paper it is only intended to put on record the facts obtained on this trip. Serventy and Whittell (*Birds of Western Australia,* 1951, p. 356) have the following comment to make on the distribution of the species in Western Australia: "The distribution of the species in Western Australia appears to be largely determined by that of the wild fig (*Ficus platypoda*) on the fruits of which it feeds, and the southern 'fig line' is also the southern limit of occurrence of the Spotted Bower-bird. The wild fig grows in rough country, among rocks and cliffs, but is not uniformly distributed, and the bower-bird likewise has a patchy distribution. When